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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/718,397	11/19/2003	Steve J. Lofland	42P15277	9724

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EXAMINER

LEO, LEONARD R

ART UNIT	PAPER NUMBER
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3744

DATE MAILED: 11/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

NT

Office Action Summary

Application No.

10/718,397

Applicant(s)

LOFLAND ET AL.

Examiner

Leonard R. Leo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 February 2006.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 10-15 and 19-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 6, 10-12, 14, 15, 19-21 and 23-26 is/are rejected.
- 7) ☒ Claim(s) 4, 13 and 22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The finality of the Office action mailed June 6, 2006 is withdrawn in view of the amendment filed on August 7, 2006. Claims 1-6, 10-15 and 19-26 are pending.

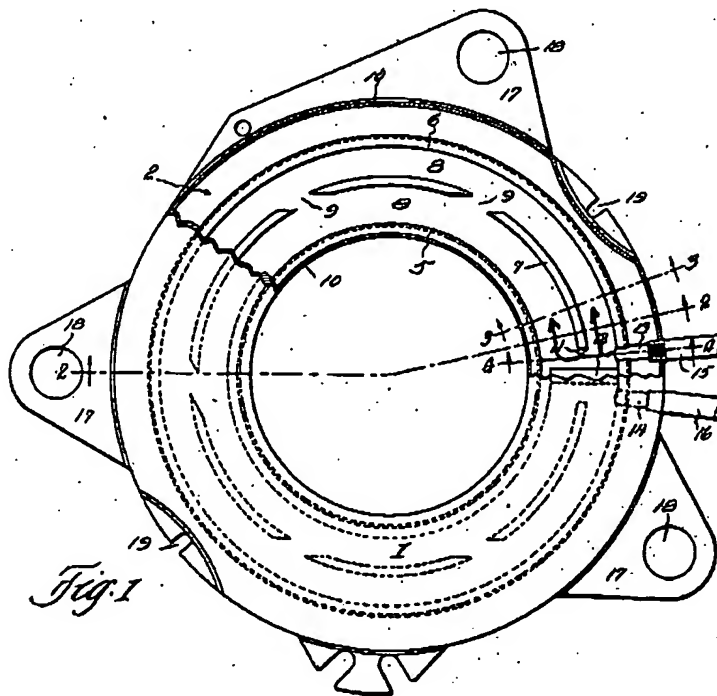
Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 10 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Vandergrift. Vandergrift (Figure 2-5) discloses a first member 1 with semi-circular channel walls 3, 4 interlaced with a second member 2 with semi-circular channel walls 5, 6, 7 to provide two fluid flow paths having different directions (marked-up Figure 1 below).



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The first fluid flow path from fluid inlet 13 turns immediately into the outer channel 8 proceeding until it turns immediately into the fluid outlet 14. The second fluid path extends radially inward or straight from the fluid inlet 13 and turn into the inner channel 8 beyond the semi-circular wall 7 proceeding until it turns immediately toward the fluid outlet beyond the semi-circular wall 7.

The recitation of "for cooling an electronic component" is considered to be a statement of intended use, even if claimed, does not merit patentable weight unless the body of the claim refers back to, is defined by, or otherwise draws life and breadth from such intended use. *Ex parte Masham*, 2 USPQ2d 1647 (1987).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 5, 10-12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bronander in view of Tomchak.

Bronander discloses all the claim limitations except first and second members having channel walls.

Tomchak discloses a heat exchanger comprising a plurality of fluid flow paths between inlet 34 and outlet 24 defined by first and second members 14, 15 having channel walls 26, 27, 30, 31 for the purpose of ease of manufacture. When the fluid flow path is small, it is easier to

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form channels from two separate members as taught by Tomchak, rather than form channels in a single member as disclosed by Bronander.

Since Bronander and Tomchak are both from the same field of endeavor and/or analogous art, the purpose disclosed by Tomchak would have been recognized in the pertinent art of Bronander.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Bronander first and second members having channel walls for the purpose of ease of manufacture as recognized by Tomchak.

Regarding claims 3 and 12, the fluid flow paths of Bronander are symmetric.

Regarding claims 5 and 14, it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987). Therefore, the "inlet" at the center of the members is structurally met by Bronander.

Claims 6 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vandergrift in view of Fraas et al.

The device of Vandergrift lacks tapered channel walls.

Fraas et al discloses tapered fins/ribs make more efficient use of material than fins/ribs of uniform thickness.

Since Vandergrift and Fraas et al are both from the same field of endeavor and/or analogous art, the purpose disclosed by Fraas et al would have been recognized in the pertinent art of Vandergrift.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Vandergrift tapered fins/ribs for the purpose of making efficient use of material as recognized by Fraas et al.

Claims 19 and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vandergrift in view of Miyata et al.

The device of Vandergrift lacks a combination with an electronic component.

Miyata et al discloses a system comprising a wafer 5 mounted on support 16 including a heat exchanger 40 (Figure 6) for the purpose of controlling the temperature of the wafer.

Since Vandergrift and Miyata et al are both from the same field of endeavor and/or analogous art, the purpose disclosed by Miyata et al would have been recognized in the pertinent art of Vandergrift.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ the device of Vandergrift in combination with a wafer for the purpose of controlling the temperature thereof as recognized by Miyata et al. Note the very similar structure of Miyata et al in Figure 6 and Vandergrift.

Regarding claim 25, Miyata et al discloses refrigerator 49 coupled by tubing 46b, 47a with pumps 45a, 45b.

Regarding claim 26, the Examiner takes Official Notice of fans in the refrigeration art to improve convective heat exchange, i.e. forced convection provides improved heat transfer.

Claims 19-21, 23 and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bronander in view of Tomchak as applied to claims 1-3, 5, 10-12 and 14 above, and further in view of Miyata et al, as applied to claims 19 and 25-26 above.

Claims 6, 15 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bronander in view of Tomchak further in view of Miyata et al as applied to claims 19-21, 23 and 25-26 above, and further in view of Fraas et al, as applied to claims 6 and 15 above.

Allowable Subject Matter

Claims 4, 13 and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

As noted above, the rejection of claims 4 and 13 are withdrawn. The claims appear to read on applicant's Figure 25.

Applicant's arguments have been fully considered but they are not persuasive.

The amendment filed on September 26, 2005 necessitated a new grounds of rejection in the final Office action mailed on December 15, 2005 due to the amendment to claim 1. In the amendment filed February 15, 2006, applicant pointed out the merits of claims 21-24 were incorrectly addressed. In the final Office action mailed on June 6, 2006, a new grounds of rejection addressed the amended claims from the amendment filed on February 15, 2006, and the finality of the Office action mailed on December 15, 2006 was withdrawn. Accordingly, this Office action is made final in response to the amendment filed on September 26, 2005, which necessitates a new grounds of rejection.

With respect to applicant's remarks in view of Vandergrift, the scope of the claim does not preclude the Examiner's reading of Vandergrift having "two fluid flow paths having different flow directions between the fluid inlet and fluid outlet." The claim does not recite the length of

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the flow path or the relative directions of the flow paths. Therefore, the two fluid flow paths of Vandergrift, i.e. one flow path turning immediately into the outer channel from the fluid inlet 13 and the other flow path extending radially inward or straight from the fluid inlet and turning into the inner channel 8 are "different" flow directions "between the fluid inlet and fluid outlet." The Examiner agrees Vandergrift does not disclose opposite clockwise and counterclockwise directions, which is not recited in the claims.

With respect to applicant's remarks in view of Fraas et al, the Examiner regrets the cover page and copyright page were omitted in the Office action mailed on June 6, 2006 by the contractors. A copy of the cover page and figures referenced on page 3 with a PTO-892 to ensure inclusion with the Advisory action. As stated in the previous Office actions, Fraas et al discloses employing tapered fins/ribs for the purpose of making efficient use of material. Applicant does not dispute this teaching, but believes Fraas et al cannot be combined with Vandergrift because Vandergrift et al teaches away from casting and Fraas et al discloses cast tapered fins. The Examiner does not find this persuasive, in that the operation and function of the device of Vandergrift is not destroyed by the teaching of Fraas et al. One of ordinary skill in the art concerned with efficient use of fin material would employ the teaching of Fraas et al in Vandergrift.

With respect to applicant's remarks in view of Miyata et al, it appears claim 19 stands or falls with the rejection in view of Vandergrift. No argument has been presented other than the disclosure of Vandergrift being insufficient. Claim 25 was not rejected under inherency. Applicant does not argue Miyata et al does not disclose the limitations of claim 25. Regarding claim 26, the Examiner was thinking "Official Notice," but wrote "inherently." As noted above,

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refrigerators are well known in the art to employ fans to improve convection heat exchange, i.e. forced convection provides improved heat transfer.

With respect to applicant's remarks in view of the combination of Bronander and Tomchak, the Examiner would like for applicant's to specifically point out what limitations Bronander lacks other than being formed of two members with channel walls. Tomchak teaches forming a heat exchanger composed of first and second members having channel walls for the purpose of ease of manufacture. One of ordinary skill in the art would combine the teachings of Bronander and Tomchak, since both are panel heat exchangers formed by opposed plates or shells and commonly classified in 165/170. Rather than relying upon the specific working environment of the devices, the devices are structurally and functionally similar, in that, a working fluid is disposed between opposed surfaces and follows a fluid path between an inlet and outlet defined by channel walls and transfers heat to one of the outer surfaces. The examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it is believed the knowledge is generally available to one of ordinary skill in the art. The fact that it appears to be the same reason disclosed by applicant is merely a coincidence.

Regarding claims 5 and 14, the scope of the claim does not preclude the Examiner's reading of Bronander having a fluid inlet, as per *Ex parte Masham*, "located at a center of the

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cold plate.” The claim does not specify the size of the center. Therefore, the “fluid inlet” of Bronander is read as the “center.”

The discussion above is equally applicable to applicant’s remaining remarks. Further, as disclosed in Figure 6 of Miyata et al, heat exchanger 40 comprising a working fluid disposed between opposed surfaces following a fluid path 40a between an inlet 46b and outlet 47a defined by channel walls 40d and transferring heat to one of the outer surfaces is structurally and functionally similar to Bronander and Tomchak.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

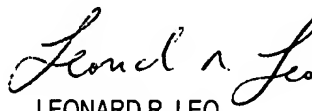
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard R. Leo whose telephone number is (571) 272-4916. The examiner can normally be reached on Monday thru Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on (571) 272-4834. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


LEONARD R. LEO
PRIMARY EXAMINER
ART UNIT 3744

November 7, 2006